## AMENDEMENTS TO THE CLAIMS

Claims 1-9 (Canceled)

Claims 10-13 (Withdrawn)

Claims 14-23 (Canceled)

Claims 24-27 (Withdrawn)

28. (New) A transgenic mouse whose genome comprises a disruption in an endogenous PTP36 gene, wherein where the disruption is homozygous and the transgenic mouse is female, the transgenic mouse lacks production of functional PTP36 protein, and exhibits at least one of the following phenotypes, relative to a wild-type mouse: a uterine abnormality, a hormonal imbalance, androgenization, increased body weight, increased organ weight, reduced or absent mammary tissue or increased anogenital distance.

29. (New) The transgenic mouse of claim 28, wherein the uterine abnormality comprises uterine dilation.

30. (New) The transgenic mouse of claim 28, wherein the uterine abnormality comprises presence of keratin in uterine horns.

31. (New) The transgenic mouse of claim 28, wherein the uterine abnormality comprises presence of keratin in uterine lumen.

32. (New) The transgenic mouse of claim 28, wherein the increased organ weight comprises increased liver weight.

33. (New) The transgenic mouse of claim 28, wherein the increased organ weight comprises increased spleen weight.

34. (New) The transgenic mouse of claim 28, wherein the increased organ weight comprises increased thymus weight.

35. (New) The transgenic mouse of claim 28, wherein the increased organ weight comprises increased liver weight relative to body weight.

36. (New) The transgenic mouse of claim 28, wherein the increased organ weight comprises increased spleen weight relative to body weight.

37. (New) A cell or tissue obtained from the transgenic mouse of claim 28.

38. (New) A transgenic mouse comprising a heterozygous disruption in an endogenous PTP36 gene, wherein the disruption in a homozygous state in a female mouse inhibits production of functional PTP36 protein resulting in a transgenic female mouse exhibiting at least one of the

following phenotypes, relative to a wild-type mouse: a uterine abnormality, a hormonal imbalance, androgenization, increased body weight, increased organ weight, reduced or absent mammary gland tissue or increased anogenital distance.

39. (New) The transgenic mouse of claim 38, wherein the uterine abnormality comprises uterine dilation.

40. (New) The transgenic mouse of claim 38, wherein the uterine abnormality comprises presence of keratin in uterine horns.

41. (New) The transgenic mouse of claim 38, wherein the uterine abnormality comprises presence of keratin in uterine lumen.

42. (New) The transgenic mouse of claim 38, wherein the increased organ weight comprises increased liver weight.

43. (New) The transgenic mouse of claim 38, wherein the increased organ weight comprises increased spleen weight.

44. (New) The transgenic mouse of claim 38, wherein the increased organ weight comprises increased thymus weight.

45. (New) The transgenic mouse of claim 38, wherein the increased organ weight comprises increased liver weight relative to body weight.

46. (New) The transgenic mouse of claim 38, wherein the increased organ weight comprises increased spleen weight relative to body weight.

47. (New) A method of producing a transgenic mouse comprising a disruption in an endogenous PTP36 gene, the method comprising:

(a) introducing a targeting construct capable of disrupting an endogenous PTP36 gene into a mouse embryonic stem cell;

(b) introducing the mouse embryonic stem cell into a blastocyst;

(c) implanting the resulting blastocyst into a pseudopregnant mouse, wherein the pseudopregnant mouse gives birth to a chimeric mouse; and

(d) breeding the chimeric mouse to produce the transgenic mouse,

wherein where the disruption is homozygous and the transgenic mouse is female, the transgenic mouse lacks production of functional PTP36 protein and exhibits at least one of the following phenotypes, relative to a wild-type mouse: a uterine abnormality, a

hormonal imbalance, androgenization, increased body weight, increased organ weight, reduced or absent mammary gland tissue or increased anogenital distance.

48. (New) The transgenic mouse produced by the method of claim 47.

49. (New) A targeting construct comprising:

(a) a first polynucleotide sequence homologous to at least a first portion of an endogenous PTP36 gene;

(b) a second polynucleotide sequence homologous to at least a second portion of the endogenous PTP36 gene; and

(c) a selectable marker gene located between the first and second polynucleotide sequences;

wherein the targeting construct, when introduced into a mouse embryonic stem cell, produces a disruption in the PTP36 gene, wherein the disruption ,when homozygous in a female mouse, inhibits production of PTP36 protein and causes at lease one of the following phenotypes in the female mouse, relative to a wild-type mouse: a uterine abnormality, a hormonal imbalance, androgenization, increased body weight, increased organ weight, reduced or absent mammary gland tissue or increased anogenital distance.

50. (New) A murine embryonic stem cell comprising a disruption in an endogenous PTP36 gene, the disruption produced using the targeting construct of claim 49.

51. (New) A method of producing a targeting construct, the method comprising:

(a) providing a first polynucleotide sequence homologous to at least a first portion of an endogenous mouse PTP36 gene;

(b) providing a second polynucleotide sequence homologous to at least a second portion of the endogenous mouse PTP36 gene;

(c) providing a selectable marker gene; and

(d) inserting the first sequence, second sequence, and selectable marker gene into a vector such that the selectable marker gene is located between the first and second sequences to produce the targeting construct,

wherein the targeting construct, when introduced into a mouse embryonic stem cell, produces a disruption in the PTP36 gene, wherein the disruption ,when homozygous in a female mouse, inhibits production of PTP36 protein and causes at lease one of the following phenotypes in the female mouse, relative to a wild-type mouse: a uterine

abnormality, a hormonal imbalance, androgenization, increased body weight, increased organ weight, reduced or absent mammary gland tissue or increased anogenital distance.